CLAIMS

1 A method of optimising a design of a component by conducting at least one analysis which incorporates empirically obtained data values, the at least one analysis comprising the steps of:

a) representing surface properties of said component as at least two 2D images defined by at least two 2D datasets which comprises a plurality of data values,

b) representing said component as a 3D computer model having a surface defined by a plurality of nodes, said nodes further defining a plurality of polygonal elements,

c) defining at least six features common to both the at least two 2D images and the 3D computer model,

d) identifying co-ordinates common to the at least two 2D data sets and the 3D computer model,

e) assigning data values from at least one common co-ordinate in the at least two 2D data sets to the associated nodal co-ordinate in the 3D computer model,

f) resolving ambiguities between values from the at least two 2D data sets assigned to common nodes, said nodes defining polygonal elements common to both 2D data sets, by determining an apparent area of said common polygonal elements from each of the at least two 2D datasets which contain an ambiguous value, and using the data value from the 2D dataset associated with the common polygonal element having the greater apparent area.

g) employing the 3D computer model in at least one analysis to optimise the design of the said component,

the method further comprising the step of selecting an optimum component design on the basis of the results of the at least one analysis.

2 A method as claimed in claim 1 wherein the method comprises the step of mapping at least one 2D data set onto the 3D computer model such that the properties of the 3D model surface comprise the 2D dataset.

3 A method as claimed in claim 1 wherein the method comprises the step of mapping at least one 2D data set onto the 3D computer model such that geometric features of the 3D model surface comprise the 2D dataset.

4 A method as claimed in claim 1 wherein the at least two 2D data sets comprise data derived from a 2D image of said component.

5 A method as claimed in claim 1 wherein the at least two 2D data sets comprise image data of said component coated with temperature indicating paint.

6 A method as claimed in claim 1 wherein the at least two 2D data sets comprise image data of said component coated with pressure sensitive paint.

7 A method as claimed in claim 1 wherein the at least two 2D data sets comprise data derived from vibration analysis.

8 A method as claimed in claim 1 wherein the at least one 2D data sets comprise data derived from pyrometry measurements.

9 A method of manufacturing a component, the method comprising the step of optimising the design of the component by a method in accordance with claim 1.

10 A method of manufacturing a component as claimed in claim 9 wherein the component is a turbine stator segment, the design of said turbine stator segment being optimised by a method in accordance with claim 1.

11 A method of manufacturing a component as claimed in claim 9 wherein the component is a turbine blade, the design of said turbine blade being optimised by a method in accordance with claim 1.

12 A component having a design optimised by a method in accordance with claim 1.

13 A component manufactured by a method comprising the step of optimising the design of the component by a method in accordance with claim 1.

14 A computer program product comprising code for carrying out a method in accordance with claim 1.

15 A computer system adapted to carry out a method in accordance with claim 1.